AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0025], the first full paragraph on page 11, with the following one:

[0025] 2: Wide-range air-fuel ratio sensor (Gas sensor), 4: Sensor element, 6: Ceramic sleeve, 8: Sensing portion, 10: Lead frame (Electrode output terminal), 11: First lead frame, 30, 31, 32, 34, 36: Electrode terminal portion, 44: Outer sleeve, 50: Elastic seal member, 54: First tubular portion, 56: Second tubular portion, 58: Third tubular portion, 61: Lead wire insertion hole, ~~64~~46: Lead wire, 65: Deformed portion, 82: Separator, 83: Flange portion, 86: First frame positioning groove, 88: Second frame positioning groove, 102: Metallic shell, 200: Urging metal piece (Urging member), 211: Second lead frame.

Please amend paragraph [0036], the first full paragraph on page 16, with the following one:

[0036] An outer sleeve 44 made of stainless alloy, 0.5 mm in thickness, is fixed to on the outer periphery of the metallic shell 102 on the rear end side thereof. The outer sleeve 44 includes as shown in Fig. 1 a first tubular portion 54 joined to the metallic shell 102, a second tubular portion 56 positioned closer to the rear end than the first tubular portion 54 and having a smaller diameter than the first tubular portion 54, a first shoulder 49 positioned between them, a third tubular portion 58 positioned closer to the rear end than the second tubular portion 56 and having a smaller diameter than the second tubular portion ~~54~~56, and a second shoulder 48 positioned between them. In the present embodiment, the outer sleeve 44 is fixed to the metallic shell 102 in such a way that the outer sleeve 44 is disposed on the outer periphery of the metallic shell 102

on the rear end side, and an overlapping portion of the outer sleeve 44 with the metallic shell 102 is crimped radially inwardly from outside of the outer sleeve 44 and then is circumferentially weld by laser.

Please amend paragraph [0037], the second full paragraph on page 16, with the following one:

[0037] Fitted in a rear end opening of the outer sleeve 44 (i.e., the inside of the third tubular portion ~~48~~58) is an elastic seal member 50 made of fluororubber, which includes lead wire insertion holes 61 through which five lead wires 46 are inserted and connected to the electrode terminal portions 30, 31, 32, 34, and 36 of the sensor element 4 respectively and a protruding portion 53 protruding radially outwardly.

Please amend paragraph [0039], the first full paragraph on page 17, with the following one:

[0039] Herein, this separator 82 is held inside the surface of 44i of the outer sleeve 44 as shown in Fig. 1 while the outer circumferential surface of the separator 82 is in noncontact with the inner circumferential surface of the outer sleeve 44. To be more concrete, the separator 82 is held inside the outer sleeve 44 while the separator 82 is urged toward the rear end by an urging metal piece 200 mentioned later so that the separator 82 is in contact with a front end surface 52 of the elastic seal member 50 and supported between the front end surface 52 of the elastic seal member 50 and the urging metal piece 200, and also in noncontact with the inner circumferential surface 44i of the outer sleeve 44. In the present embodiment, the outer circumferential surface

82s of the separator 82 and the inner circumferential surface 44i of the outer sleeve 44 are spaced 0.5 mm or more in a radial direction of the air-fuel ratio sensor 2. A minimum distance S between them is set at 1.5 mm.

Please amend paragraph [0040], the paragraph bridging pages 17 and 18, with the following one:

[0040] The separator 82 will be explained below. Fig. 4 shows a perspective view showing an external view of the separator 82 seen from the front end side. As shown in Figs. 1 and 4, the separator 82 is formed in a tubular shape having an insertion hole 84 formed axially therethrough and is provided with a rear-end-side portion 303, a front-end-side portion 301, and a flange portion 83 which is interposed between them and of a larger diameter than those of them. As shown in Fig. 1, a rear end surface 305 of the separator 82 (in detail, the rear-end-side portion ~~30~~303 is formed in a concave shape recessed radially inwardly from the peripheral edge. Specifically, this rear end surface 305 is formed in a spherical shape recessed from the peripheral edge toward the insertion hole 84 centrally positioned.

Please amend paragraph [0047], the first full paragraph on page 20, with the following one:

[0047] Each tubular extended portion 204 is formed between the J-shaped holding portions ~~204~~203 and curved inwardly into a letter J as with the J-shaped holding portions 203. However, the J-shaped holding portions 203 have a curvature adjusted to protrude more inwardly in a radial direction than the tubular extended portions 204. As shown in Fig. 1, at the same time

when the deformed portion 65 is formed in the second tubular portion 56 of the outer sleeve, a deformed portion 205 is also formed in the tubular portion 201. Accordingly, the tubular portion 201 urges the front end side surface of the flange portion 83 of the separator 82, that is, the separator 82 toward the rear end.

Please amend paragraph [0062], the first full paragraph on page 24, with the following one:

[0062] Each lead frame 10 is fixedly held between the inner wall of the insertion hole 84 of the separator 82 and the sensor element 4 while the device contact part 16 is elastically deformed in contact with any one of the electrode terminal portions 30, 31, 32, 24, and 36 of the sensor element 4. In the air-fuel ratio sensor 2 in the present embodiment, as shown in Fig. 1, a contact region ~~301~~603 between the device contact part 16 of the lead frame 10 and the electrode terminal portion of the sensor element 4 is located ~~backward~~forward of a supported region ~~303~~601 of the separator 82 by the urging metal piece 200, in the axial direction (a vertical direction in Fig. 1) of the air-fuel ratio sensor 2. In the present embodiment, the formation position of the flange portion 83 of the separator 82 is previously adjusted so that the supported region ~~303~~601 of the separator 82 by the urging metal piece 200 is located backward of the contact region ~~301~~603 between the device contact part 16 of the lead frame 10 and the electrode terminal portion of the sensor element 4.

Please amend paragraph [0064], the paragraph bridging pages 24 and 25, with the following one:

[0064] A first assembling method of the air-fuel ratio sensor 2 is as follows.

Five lead frames 10 connected one each to the lead wires 46 are disposed in the separator 82 as mentioned above. At this time, the urging metal piece 200 is mounted on the outer periphery of the front-end-side portion 301 of the separator 82 so that the J-shaped holding portion 203 contacts the front-end-side surface 601 of the flange portion 83. Subsequently, the elastic seal member 50 is put on the rear end surface 305 of the separator 82 and in this state the outer sleeve 44 is moved from the elastic seal member 50 side. The outer sleeve 44 is moved until the second shoulder 48 of the outer sleeve 44 comes into contact with the protruding portion ~~305~~53 of the elastic seal member 50 to house the separator 82 and the elastic seal member 50 in the outer sleeve 44. In this state, the separator 82 is accommodated in noncontact with the inner circumferential surface 44i of the outer sleeve 44.

Please amend paragraph [0065], the first full paragraph on page 25, with the following one:

[0065] A part of the second tubular portion 56 of the outer sleeve 44, positioned radially outside the tubular portion 201 of the urging metal piece 200, is crimped radially inwardly by use of a pressing jig to form the deformed portion 65, thereby simultaneously deforming the urging metal piece 200 existing inside thereof. Thus, the urging metal piece 200 urges the separator 82 toward the rear end. The deformed portion 65 is formed by round-crimping from all sides. In the case where the urging metal piece 200 is deformed while the separator 82 is held in contact with the front end surface of the elastic seal member 50, the urging metal piece 200 is deformed under a

small load (approximately 5N) on the elastic seal member ~~55~~50 from the rear to front end side to prevent large positional displacement of the elastic seal member 50.

Please amend paragraph [0066], the paragraph bridging pages 25 and 26, with the following one:

[0066] Then, a part of the third tubular portion 58 of the outer sleeve 44, positioned around the elastic seal member 50, is crimped by use of a crimping jig to airtightly seal the elastic seal member 50 with respect to the outer sleeve 44 and each lead wire 46. Accordingly, the separator 82 is fixedly held between the urging metal piece 200 and the elastic seal member 50 and in noncontact with the inner circumferential surface 44i of the outer sleeve 44 while the peripheral edge of the rear end surface 305 is in contact with the front end surface 52 of the elastic seal member 50. As just described, an upper assembly is first fabricated.

Please amend paragraph [0069], the paragraph bridging pages 26 and 27, with the following one:

[0069] Next, a second method for assembling the air-fuel ratio sensor 2 will be explained.

Five lead frames 10 connected one each to the lead wires 46 are disposed in the separator 82 as described above. At this time, the urging metal piece 200 is mounted on the outer periphery of the front-end-side portion 301 of the separator 82 so that the J-shaped holding portion 203 contacts the front end side surface of the flange portion 83. Subsequently, the elastic seal member 50 is put on the rear end surface 305 of the separator 82 and in this state the outer sleeve 44 is moved from the elastic seal member 50 side. The outer sleeve 44 is moved until the

second shoulder 48 of the outer sleeve 44 comes into contact with the protruding portion ~~305~~53 of the elastic seal member 50 to house the separator 82 and the elastic seal member 50 in the outer sleeve 44. In this state, the separator 82 is accommodated in noncontact with the inner circumferential surface of the outer sleeve 44.

Please amend paragraph [0070], the first full paragraph on page 27, with the following one:

[0070] A part of the second tubular portion 56 of the outer sleeve 44, positioned radially outside the tubular portion 201 of the urging metal piece 200, is crimped radially inwardly by use of a pressing jig to form the deformed portion 65, thereby simultaneously deforming the urging metal piece 200 existing inside thereof. Thus, the urging metal piece 200 urges the separator 82 toward the rear end. As just described, an upper assembly is first fabricated. It is to be noted that the deformed portion 65 is formed by round-crimping from all sides. In the case where the urging metal piece 200 is deformed while the separator 82 is held in contact with the front end surface of the elastic seal member 50, the urging metal piece 200 is deformed under a small load (approximately 5N) on the elastic seal member ~~55~~50 from the rear to front end side to prevent large positional displacement of the elastic seal member 50.

Please amend paragraph [0074], the second full paragraph on page 28, with the following one:

[0074] In the upper assembly in the second assembling method, however, the separator 82 placed between the urging metal piece 200 and the elastic seal member 50 as mentioned above is held at

the relatively small holding force. Accordingly, in the case where the rear end of the sensor element 4 is inserted in the insertion hole 84 of the separator 82, the separator 82 is permitted to slightly incline about the supported region 601 of the separator 82 by the urging metal piece 200 even if there is a warp in the rear-end-side portion of the sensor element 4. This makes it possible to effectively prevent the sensor element 4 from becoming cracked or broken.

Please amend paragraph [0077], the third full paragraph on page 29, with the following one:

[0077] As described above, in the air-fuel ratio sensor 2 in the present embodiment, the separator 82 is held in the outer sleeve 44 while the outer circumferential surface 82s of the separator 82 is in noncontact with the inner circumferential surface 44i of the outer sleeve 44. In other words, the separator 82 is accommodated in the outer sleeve 44 with a clearance from the inner circumferential surface 44i of the outer sleeve 44. Accordingly, even when a scattering stone or the like collides against the outer sleeve 44, compressive stress resulting from the impact can be released in the clearance. Thus, the impact is not directly transmitted to the separator 82 even where impact is applied from outside of the outer sleeve 44, so that breakage of the separator 82 can be prevented.

Please amend paragraph [0078], the paragraph bridging pages 29 and 30, with the following one:

[0078] In the present embodiment, furthermore, in the case where the separator 82 is held in the outer sleeve 44 in noncontact relation with the inner circumferential surface 44i of the outer

sleeve 44, the separator 82 is held while being in contact with the front end surface 52 of the elastic seal member 50 and urged toward the rear end. In this way, since the separator 82 is elastically held in contact with the elastic seal member 50, the elastic seal member 50 can cushion or absorb impact even if the impact is applied from outside to the outer sleeve 44, thereby preventing the separator 82 from wobbling in the outer sleeve 44. Consequently, while the separator 82 is held in noncontact relation with the inner circumferential surface of the outer sleeve 44, the separator 82 can be held stably in the outer sleeve 44 during use of the air-fuel ratio sensor 2.

Please amend paragraph [0080], the second full paragraph on page 30, with the following one:

[0080] In the present embodiment, the supported region ~~301~~601 of the separator 82 by the urging metal piece 200 is positioned closer to the rear end in the axial direction of the air-fuel ratio sensor 2 than the contact region ~~303~~603 between the device contact part 16 of the lead frame 10 and the electrode terminal portion of the sensor element 4. Since the supported region ~~301~~601 of the separator 82 by the urging metal piece 200 and the contact region ~~303~~603 between the device contact part 16 of the lead frame 10 and the electrode terminal portion of the sensor element 4 are positioned in an offset relation in the axial direction of the air-fuel ratio sensor 2 as mentioned above, stress resulting from wobble of the separator 82 about the supported region ~~303~~603 will unlikely affect the contact region ~~301~~601 and breakage of the sensor element 4 or the like can effectively be prevented from occurring.

Please amend paragraph [0081], the paragraph bridging pages 30 and 31, with the following one:

[0081] Moreover, in the present embodiment, the outer circumferential surface 82s of the separator 82 and the inner circumferential surface 44i of the outer sleeve 44 are spaced 0.5 mm or more as viewed in the radial direction. Therefore the inner circumferential surface 44i of the outer sleeve 44 is unlikely to come into contact with the outer circumferential surface 82s of the separator 82 even when a scattering stone or the like collides against the outer sleeve 44. This makes it possible to effectively prevent breakage of the separator 82.